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ABSTRACT

This document provides an agenda for investment by the National Institute of Education and identifies the problem areas and functional activities that require a greater commitment of resources to provide an effective national program of research and development in higher education. Fifteen major problem areas have been identified, including: policy, planning and organization; alternative forms in processes; economics and financing; program planning and analysis; standards and procedures; institutional operations; change strategies; student access and distribution; certification and accreditation; curriculum design; student services; institutional environments; instructional process; student learning and development; and evaluation and measurement. The list is grouped by related problem areas and not in priority order. Each area description includes a statement about the effort currently under way by members of the Higher Education Research and Development group as an aid to planning decisions. (MJM)

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HIGHER EDUCATION
RESEARCH AND DEVELOPMENT
PRIORITIES

A joint report to the National Institute for Education

Prepared by the Higher Education

Reserach and Development (HERD) Group

Center for Research and Development in Higher Education

at Berkeley (CRDHE)

Center for the Study of Evaluation at UCLA (CSE)

National Center for Higher Education Management Systems

at WICHE (NCHEMS)

National Laboratory for Higher Education (NLHE)

April 27, 1972

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HIGHER EDUCATION RESEARCH AND DEVELOPMENT PRIORITIES

Introduction

The current crisis in higher education is characterized by a number of factors: changing values of society, pressing social needs facing the nation, increases in the numbers and proportion of young people going on to college, and shrinking resources to meet full demands for higher education. Moreover, the ability of higher education to respond adequately to this crisis is limited in part to the relatively small amount of resources devoted to systematic assessment of effectiveness and development of alternatives to current educational practices. Higher education, unlike many sectors of the economy, has not had a research and development component of sufficient proportions in relation to its size, its importance, and its needs. A national program for higher education research and development is required which blends the expertise and knowledge of various academic fields with the broader perspectives and public accountability of a national organization. For these reasons, the representatives of the Higher Education Research and Development (HERD) Group have undertaken a joint planning effort to provide an agenda for investment in higher education by NIE and to identify the problem areas and functional activities which seem to them at least to require a greater commitment of resources in order to provide an effective national program of research and development in higher education. The HERD group includes: Center for Research and Development in

Higher Education at Berkeley (CRDHE), Center for the Study of Evaluation at UCLA (CSE), National Center for Higher Education Management Systems at WICHE (NCHEMS), and National Laboratory for Higher Education (NLHE).

Problem Areas for Research and Development in Higher Education

Fifteen major problem areas have been identified for research and development in higher education. The list is grouped by related problem areas and not in priority order. Each area description includes a statement about the effort currently under way by members of the HERD group as an aid to planning decisions. In no way are these statements meant to imply that members of HERD are working on all of the important problems in each area. But the list does indicate consensus on priorities important to all of higher education. Further rationale for these priorities is stated in the Basic Program Plans of the HERD group.

1. Policy, Planning & Organization
2. Alternative Forms in Processes
3. Economics & Financing
4. Program Planning & Analysis
5. Standards & Procedures
6. Institutional Operations
7. Change Strategies
8. Student Access & Distribution
9. Certification & Accreditation
10. Curriculum Design
11. Student Services
12. Institutional Environments
13. Instructional Process
14. Student Learning & Development
15. Evaluation & Measurement

1. Policy, Planning, and Organization are the procedures, processes, and structures employed in the development of specific or general goals, objectives, rules, and regulations (for higher education). It is concerned with the art and science of governing through formal and informal organization and communication systems, including various levels, agencies, and positions composing the governance system, and their interrelationships in terms of power, authority, and influence.

The problems of particular priority relate policy development for effecting new management techniques, and structural and processed means required to create new priorities in academic programs and in resource reallocations. The Center for Research and Development in Higher Education (CRDHE) is working on these problems through a broad program of research on "governance structures, processes and participants. It has undertaken the development of a number of guidelines, models, and instruments to assist institutions at state board meetings and budgeting agencies in addressing the problems of policy development, planning, and organization and is providing widespread dissemination of these materials. At the present time, there are no training activities in this area and few programs directed toward implementation or evaluation. NLHE has developed and is field testing alternative procedures for determining or clarifying institutional goals.

2. Alternative Forms and Processes

Increasingly, American postsecondary education is characterized by its diversity and types of institutions and by the form which individual institutions use in extending their services to various segments of the population. Not only are new types of institutions (e.g., two-year colleges, upper division colleges, etc.) being formed, but there is also a dramatic increase in the number of people enrolling in programs offered by agencies outside the formal system. Such programs are found in industry (not only for people in particular companies but also for the general population as well), in the military, and in proprietary schools of many types and descriptions. These programs are as much a part of postsecondary education as are those in the "regular" schools and colleges. The role of these agencies, their impact on and relation to the more formal system, and the implications they hold for public policy are important subjects for research. Moreover, there are many more people who take advantage of opportunities found in institutions outside the formal system than institutions inside the system. Rapid change is also occurring in the formal system, particularly with respect to time-space arrangements. The emerging concern about when and how people should be educated has led to a new emphasis on nontraditional education, including external degrees, special out-reach programs, colleges without walls, length of time required for various programs and degrees; concurrent education; and on-the-job training in the school

calendar. Research and development questions arise in connection with the extent to which and how postsecondary education can and should become more flexible. The problem area is obviously closely related to other research and development concerns, particularly to management, policy planning and organization, and the economics of postsecondary education. The Center for Research and Development in Higher Education (CRDHE) has begun an exploratory study of certain of the new forms, and in 1973 it plans to initiate a program of assessing several of the means by which education at this level is being extended. This assessment will be in terms of the impact of the various forms on the students they serve, the institutions themselves, the extrainstitutional relationships including accreditation, and the cost of education both to students and to society.

3. Economics and Financing of Higher Education addresses the questions regarding the costs of higher education, alternative means of supporting these costs, higher education production functions, and the economic costs and benefits of higher education. The rising costs of higher education and increasing concern regarding the benefits of higher education have recently highlighted the lack of information about this important aspect of American higher education. A substantive research effort needs to be undertaken to uncover explicitly the economic aspects of higher education, including such things as the factors of production, the costs associated with these factors, and studies of the various alternative means for providing financial support to higher education.

4. Program Planning and Analysis is concerned with addressing the problems of determining higher education program objectives and the associated resource requirements to accomplish the program objectives. Activities in this area include the determination of operational (quantifiable) objectives for the goals set forth by a goal-setting function and methods to aid in selection of alternative or competing programs by comparing the planned output and the expected costs of resources. The National Center for Higher Education Management Systems (NCHEMS) Analytical Procedures program is directed toward research, development, training, and dissemination of tools and procedures that will assist institutions and agencies in conducting program planning and resource allocation. NLHE is developing and testing procedures for deriving specific measurable objectives from predetermined institutional goals along with self-instructional materials for institutional staff training purposes. In addition, a Management Planning Guide is being developed and tested by the Instructional Management for Accountability and Renewal Program of NLHE. At the present time, there is no major commitment of resources to assist in the implementation of these various tools and procedures, nor is there a substantive program in the evaluation of program planning and resource allocation tools.

The most significant priority for investment in the problem area of program planning and resource allocation is to provide implementation assistance to higher education institutions and agencies in order that

they may adopt the various tools and procedures that will aid them in their management responsibilities. Improved management techniques are of no value to the colleges and universities if they lack the resources necessary to implement these tools. In addition, investment must be made in evaluation in order to determine the effectiveness of implementation and to identify areas that require the development of additional tools and procedures.

5. Standards and Procedures refers to the efforts to create a common communication base for institutions and agencies of higher education. This involves the establishment of standard terminology for various classifications of data and the agreement to common procedures for aggregating data elements into meaningful information. Standard procedures in this context means methodologies and definitions for interinstitutional data exchange or multiinstitutional data collection. The NCHEMS Communications Base program is addressed specifically to the research, development, training, and dissemination of materials to provide the basis for national data standards and procedures. No major commitment has been made to providing implementation assistance to institutions that adopt these new standards and procedures or to the evaluation of their effectiveness.

The significant priority in this area appears to be the need for implementation assistance to institutions and agencies that will enable them to adopt the standards and procedures. The creation of a national communication base in higher education that will facilitate the transfer of information requires that each institution and agency have the capability to array its data in accordance with a common format. A means must be found to assist the higher education community to obtain the necessary capability to provide uniform, common, and consistent information on a timely basis at a minimum cost to the data providers.

6. Institutional Operations include the class of problems that address the effectiveness and efficiency of day-to-day operations in all types and levels of higher education institutions. Given an institutional mission or set of institutional goals, every college or university in the nation is faced with all the problems associated with cost effectiveness in the utilization of resources.

While all four of the HERD agencies are concerned with the problem of institutional operations, NLHE is the only agency in the group that is focusing major attention in this area. Among the more important operational innovations introduced by NLHE are the following:

a. A system of management by objectives

b. Management guide for all levels of management

c. Management objectives retrieval system

d. The NLHE Management Information System for small and medium size colleges

e. A program accounting and reporting system to accompany the management-by-objective managerial style

f. Introduction of an internal change catalyst or renewal agent to facilitate constructive institutional change from within the institutions

g. The development of an institutional research model and a model institutional research fact book to encourage and facilitate data based decisions

Far more investment in improving the efficiency of institutional operations remains a critical need in all types of higher education institutions today; and, by combining the emerging knowledge basis and technologies from various fields and disciplines, major breakthroughs can now be expected from increased research and development investments in the improvements of institutional operations. The day-to-day operations range from admissions procedures, financial aid, student records, budgeting, accounting, payroll, inventory control, and the like, to the organizational, planning, and management systems required to mesh individual goals and objectives with institutional goals and objectives in a manner that is both feasible and cost effective at all operating levels and in all types of higher education institutions.

7. Change Strategies focus on the need that higher education institutions have for improved organizational structures and operational procedures to increase institutional efficiency, to implement the concepts of institutional, administrative, and ind vidual accountability, and to put into practice tested mechanisms for continuous institutional self-renewal. These new mechanisms are required if colleges and universities generally are to be enabled to accommodate diverse personal, community, and societal needs, and to anticipate the future needs in a constantly changing environment. Actions in this area are concerned with developing reputable systems for formulating institutional goals and objectives to accommodate changing conditions. Other activities in this area include programmatic efforts to introduce new styles of management, such as management by objectives, facilitating open communications and participatory decision making, and the introduction of information systems and other mechanisms for increasing the efficiency of day-to-day operations. NLHE's program on Institutional Management for Accountability and Renewal addresses directly all of these problems and, at the same time, introduces an internal change catalyst to support a tion research approaches to institutional problem solving and decision making.

In addition, CRDHE is conducting work on the evaluation of the impact of federal assistance to upgrade developing institutions.

8. Student Access and Distribution is concerned with the problems of the access of various potential student populations to the diversity of post-secondary institutions and agencies of education. The dimensions of the problem for students include their decision processes and information sources for selecting postsecondary opportunities and the societal forces that lead to or away from particular types of opportunities. Student populations of particular concern are low income students, moderate and low ability groups, women, and minorities. Problems for policy planning at institutions at state and national levels relate to making access available, creating information systems, encouraging rational student choices, stimulating the development of new and appropriate programs for particular student populations, predicting student flow and distribution among students appropriately to meet manpower needs.

Problems relating to access and higher entry rate are student motivation, ability to pay, pre-entry counseling, and proximity and availability of appropriate programs and delivery systems.

CRDHE has been engaged in large-scale longitudinal studies and decision processes, information sources, and people influences on student choice of postsecondary institutions. In four heavily populated states ninth graders are traced until after entry into the postsecondary institution.

Little research is being done on policy planning on the whole subject of access and implementation and evaluation programs.

9. Certification and Accreditation

Certification and Accreditation are the means by which both individuals and institutions may be legitimatized for various purposes. Of increasing concern is the extent to which individuals rely on various indices of educational attainment for entrance into the world of work or other life pursuits. In the question of whether the rigidity of the system can be decreased at the institutional level, the matter of greater institutional or program accreditation is also of growing concern. Public policy at both the federal and state levels is involved. Included among the questions to be dealt with in this area is that of awarding credit by examination for studies pursued either within or without the formal system or even for life experiences. The advent of non-teaching examining agencies that may even award degrees underlies the importance of this area as a focus for research and development.

10. Curriculum Design is concerned with the arrangement of courses, experiences, and activities organized as to content and sequence in order to teach particular subjects or to train a particular skill and the environmental setting formal and informal for their offering. Current problems relate to the creation of curriculum particularly effective with new students from low income and minority groups. Women, too, demand a reexamination of curriculum content for bias favoring men. CRDHE is engaged in a program pertaining to relevant curricula for "new students" in terms

of the relative effectiveness of student peers, paraprofessionals, and professional counselors on the academic performance of the students. CRDHE plans to assess the relative effectiveness of proprietary voc-tech curriculums with those of community colleges on student skills, job levels, and job promotions.

II. Student Services

While the role of student services, particularly counseling and guidance, has long been recognized, an increasing number of "new students" entering postsecondary institutions causes these services to assume even greater importance. It is generally recognized that all students, and particularly those from backgrounds not hitherto represented in college, are in need of numerous services outside the classrooms if they are to maximize their educational experience, much less survive. Such services include and are not limited to the following: educational and vocational counseling, financial aid and advising, assistance in job placement while in college and upon leaving, assistance in planning extracurricular activities and advising on health problems. But despite the alleged importance of these services, they are often lacking in both quantity and quality. In recent years a number of innovations including such practices as the use of peer counseling and paraprofessional workers has been introduced. The criticism of the services in general and the introduction of the new procedures that are as yet unvalidated by

sufficient research describes the necessity for research and development activities in the entire student services area. More needs to be known about the actual and potential impact of these services and help is needed in identifying and documenting new exemplary approaches. The Berkeley Center is currently studying the effectiveness of peer counseling for new students, but additional research is needed in other aspects of the problem area.

12. Institutional Environments is concerned with the atmosphere or climate of an educational institution and encompasses all of the institution's major features: organization, administration, facilities, purposes, people, etc., and the interaction of these dimensions of the enterprise. A concern for this large, complex domain reflects parallel concern in the larger society over other complex phenomena such as environmental quality and ecology. A concern for the institutional environment comes at a time when many are questioning whether there are particular virtues or benefits from one sort of institutional setting rather than another. The Center for the Study of Evaluation (CSE) program of research on college and university environment is directed toward identifying and measuring the major aspects of complex environments, thereby enabling educators and evaluators to judge more adequately the relative benefits of different kinds of educational settings. Additional resources need to be devoted to the training, dissemination, implementation, and evaluation functions that will follow subsequent to this research and development.

In NLHE's Management Planning Guide, a major section is devoted to the institution's environment. The guide provides, among other things, a systematic and comprehensive procedure for collecting, recording, and updating institutional environmental information that is meaningful in so far as the institution's own planning and decision making are concerned.

13. Instructional Processes are concerned with the development of alternative delivery systems to provide educational opportunities. In addition, the utilization of tutors and peer group relationships to enhance student learning in higher education institutions is being studied.

NLHE's program on "Accountable Learning Systems" seeks to improve instruction in both two-year and four-year colleges by developing and designing implementation strategies for instructional programs that stress the accountability of the institution for student outcomes. Under development is a model of educational accountability that describes the roles and responsibilities of the various members of the academic community in an institution, along with strategies and training methods for introducing a planned program of instructional accountability.

Also being developed is a program that trains teachers to write course objectives in measurable terms, to develop criterion-referenced tests to determine levels of student performance, to identify weaknesses in

instruction based on feedback on student achievement and attitudes, and to understand the relationship between objectives and alternative instructional strategies. This is one area where implementation assistance is being provided to a number of institutions wishing to adopt this system.

CSE is studying the variety of faculty roles and instructional influences found in large universities and developing new measures for characterizing these roles and influences so that the effectiveness of college teaching can be evaluated in more appropriate and valid ways.

14. Student Learning and Development is concerned with the change that occurs in a student's behavior between the beginning and the end of his college work. The change may be cognitive or affective in nature; it may have to do with intellectual, vocational, or personal development. A major concern in this context is the nature and extent of the influence of varying college experiences on the student's development. CSE is conducting research to identify those combinations of background, education, and personal variables highly related to change in reference to student outcomes.

In addition, CSE is doing research on the construction of new measures of student learning and development including measures of

a. Attitudes toward major social problems and issues
b. Depth and breadth of interest in the arts and sciences and other aspects of interpreting culture
c. Personal values and priorities
d. Satisfactions with college experiences
e. Awareness and understanding of leading ideas in the modern world

CRDHE is conducting a longitudinal research project to determine the extent of change and development of students with varying characteristics on a dozen college and university campuses and is also conducting research dealing with differential education and development of exceptional and creative students.

15. Evaluation and Measurement as a problem area (as distinct from the functional activity "evaluation") is concerned with research and development of new tools and tests, with concepts and theories about the nature and process of evaluation, and with improvement of the practice of evaluation. The scope of evaluation tools, concepts, and practices must be broad enough to match institutional diversity, new directions, and the variety of objectives and programs of higher education

itself. The Center for the Study of Evaluation at U.C.L.A. (CSE) is engaged in a number of programs directed toward the development of new instruments and measures that may be applied in various fields of higher education. CSE is also analyzing the results and the instrumentation used in other studies for the purpose of discovering whether certain variables and particular ways of measuring them have proven to be especially helpful. This research is basic to the development of tests or indicators for phenomena not currently being tested or for which current measures are inadequate. As a further guide to the development of needed measures, the CSE program on higher education evaluation is conducting research on different views held regarding the nature of the evaluation and how these views are related to views about the nature of education. Additional resources need to be devoted to training practitioners and to the widespread implementation of improved evaluation practices. There is a further need to provide for evaluation of the utility and effectiveness of the new tools and instruments.

As an evaluation tool, NLME has developed a computerized statistical interface system to assist college and university administrators and institutional researchers in gathering, analyzing, and interpreting statistical data that may be pertinent in institutional problem solving and decision making. This product is intended to enable the user, with minimal statistical knowledge or training, to select

appropriate statistical design, prepare data for computer entry, process the data, and interpret the computer output. NLME is also developing and testing another evaluation product called the Student Achievement Analysis System. The product is a testing, scoring, and statistical analysis system for use in evaluating student achievement and instructor effectiveness in individualized instruction at junior and community colleges.

Functional Activities

The following describes briefly six functional activities which, in general, apply to each of the problem areas:

1. Research activities are concerned with the investigation or study of a body of data for the purposes of discovering new information, hypothesis generation or testing, or answering specific questions.

2. Development activities are concerned with the production of tools or products for use by one or more institutions.

3. Training activities are concerned with increasing the knowledge or changing the activities and/or behavior of individuals.

4. Dissemination activities are concerned with the widespread distribution of either research outcomes or development products.

5. Implementation activities are concerned with direct assistance to institutions and application and use of either research outcomes or development products.

6. Evaluation activities are concerned with the collection of data on a widespread basis through the means of survey or other instruments and includes the analysis and interpretation of such data.

The Functional Activities and the Problem Areas are related in Figure 1 to indicate the areas in which the HERD labs and centers are currently directing their efforts. Figure 1 reveals those problem areas and functional activities that deserve further attention in establishing a comprehensive research and development program for NIE.

Figure 1

HIGHER EDUCATION RESEARCH & DEVELOPMENT

Summary of Problem Areas and HERD Involvement

BLEM AREAS	Research	Development	Training	Dissemination	Implementation	Evaluation
Policy, Planning & Organization	B	BN	N	BN	N	--
Alternative Forms in Processes	B	B	--	B	--	--
Economics & Financing	W	--	--	--	--	--
Program Planning & Analysis	W	W	W	W	W	--
Standards & Procedures	W	W	W	W	W	--
Institutional Operations	--	N	N	N	N	--
Change Strategies	NB	NB	N	NB	N	NB
Student Access & Distribution	B	--	--	B	--	--
Certification & Accreditation	--	--	--	--	--	--
Curriculum Design	B	B	--	B	--	--
Student Services	B	B	--	B	--	--
Institutional Environments	C	C	--	C	--	--
Instructional Process	BC	NBC	N	BN	N	N
Student Learning & Development	BC	C	--	B	--	--
Evaluation & Measurement	C	CN	--	C	--	--

B = Center for Research and Development in Higher Education at Berkeley (CRDHE)
C = Center for the Study of Evaluation at UCLA (CSE)
N = National Laboratory for Higher Education (NLHE)
W = National Center for Higher Education Management Systems at WICHE (NCHEMS)